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INTEREST, RENT, AND NORMAL RETURN ON CAPITAL INVESTMENT IN THEIR RELATION TO MANUFACTURING COSTS

Is interest a manufacturing cost? To this inadequately worded question professional accountants and economists who are interested in accounting have in recent years given much attention. Speakers at conventions of scientists, professional accountants contributing to their journals, candidates for accountancy recognition in their theses, and university instructors in accounting have all interested themselves in the controversy and have expressed their views thereon. To the American Institute of Accountants the issues in dispute have seemed sufficiently important to warrant investigation by a special committee, which has recently issued its decision.¹

For the professional accountant the question for debate is somewhat as follows: Is it proper to charge on the books of a concern as an element in the manufacturing cost of its product or products that which may be considered to be the normal return on the investment of capital involved? To some extent, this is a technical matter. But its solution is not likely to be reached unless there is a clear understanding of economic relationships. The relationships primarily involved are those between interest (contractual payments made in consideration of money loans), rent (contractual payments made in consideration of borrowed durable goods), and anticipated non-contractual return on invested capital equaling in amount the usual return on passive (non-risk-taking) investment.

The first task undertaken here, therefore, is to show by means of a specific illustration just what the proposal to charge the normal investment return as a manufacturing cost means in the case of an enterprise in which there is borrowing neither of money nor of goods; and to demonstrate, by an extension of the illustration, that the introduction of the borrowing feature, if handled by the accountant with careful discrimination, need have no complicating effect upon the nature of the problem. Then attention is given to the objects which are sought to be attained by the accounting procedure in dispute, and to the efficiency of this procedure for the attainment of the desired results.

¹ See the bibliographical list at the end of this article.

Let us study the case of a manufacturing company (*A*) organized with a capital stock (common) of \$100,000, issued at par. No bonds have been issued. Previous to the fiscal period here involved there has been no accumulation of surplus or other undivided profits. All the fixed assets employed in the business, valued at \$20,000, are owned, not rented, and the company's accountant follows the practice of charging depreciation thereon at the rate of \$1,000 per annum. Let it be further assumed that company *A* manufactures only one product, which is here designated as *X*, and that in the year in question 1,000 units of *X* were produced and sold. In the statement of operations here presented (Table 1) no attempt has been made to introduce the 'interest' factor in dispute. There is recognized the customary division of "orthodox" or generally accepted costs into "prime cost" and "indirect charges." Of the indirect expenses one item, depreciation, is specifically shown for a reason presently to appear. Under the simple conditions assumed, it is quite clear, of course, that company *A* has no difficult cost accounting problem and that the usefulness of introducing "interest" charges in modification of the cost figures presented is reduced to a minimum. Were such "costs" to be introduced, however, the bookkeeping procedure would be that of charging to different departments or processes with amounts representing a normal return on the "capital" used therein. For each such charge of nominal or "opportunity" cost there would be a credit representing hoped-for income. Costs would be "padded," and so would income.

Company *B*, let us say, was organized with a capital stock (common) of \$80,000 sold at par. Bonds were issued having a par value of \$20,000, paying interest at the rate of 5 per cent per annum. These were marketed at par and the annual charge for interest thereon is \$1,000. With respect to previous accumulations of surplus and of undivided profits, ownership of fixed assets, and the kind and quantity of product manufactured and sold during the year, the conditions are the same as those described for company *A*. Furthermore, and it is important that this hypothesis be fully grasped, the technical and economic conditions of manufacture and sale are identical with those of company *A*. The one plant duplicates the other. The labor market is the same for both. The market for materials and supplies is the same. Managerial ability in the two plants is evenly matched and the methods of management are identical. There is no dif-

ference between the balance sheets of the two companies other than that which pertains to the distribution of gains between stockholders and bondholders. By virtue of the conditions laid down, the manufacturing costs of company *B* are identical with those of company *A*; and the books and statements should show that fact. The mere payment of bond charges has in no way affected the costs of manufacture. And the insertion in the list of "other indirect expenses" of contractual interest on borrowed capital would invalidate the resulting manufacturing cost figures for purposes of comparison with other companies.

In the accompanying table the author has inserted the bond charges in the general group of items labeled "non-manufacturing costs." It is possible, logically, to go even further than this

TABLE 1

	Company <i>A</i>	Company <i>B</i>	Company <i>C</i>
1. Sales	\$150,000	\$150,000	\$150,000
2. Manufacturing costs			
3. Prime cost			
4. Direct material	\$45,000	\$45,000	\$45,000
5. Direct labor	32,000	32,000	32,000
6. Indirect charges			
7. Indirect material	12,000	12,000	12,000
8. Indirect labor	15,000	15,000	15,000
9. Indirect expenses			
10. Depreciation	1,000	1,000	1,000
11. Other	5,000	5,000	5,000
12. Total manufacturing costs	110,000	110,000	110,000
13. Gross manufacturing profit.....	40,000	40,000	40,000
14. Non-manufacturing costs			
15. Selling costs	25,000	25,000	25,000
16. Fixed charges			
17. Rentals (net)	—	—	1,000
18. Bond charges	—	1,000	—
19. Total non-manufacturing costs.....	25,000	26,000	26,000
20. Income for proprietary distribution	15,000	14,000	14,000
21. Dividends (at 8 per cent).....	8,000	6,400	6,400
22. Surplus	5,000	5,000	5,000
23. Other undivided profits	2,000	2,600	2,600
	15,000	14,000	14,000

in the physical separation of these charges from the manufacturing section of the statement, placing them in the section devoted to the distribution of income. This is a matter of preference. What is important here is that with the true manufacturing costs unadulterated by the introduction of the contractual interest item we may consider without confusion, regarding the two companies,

the real question at issue—the propriety and expediency of introducing as a cost in the manufacturing section normal or anticipated return on invested capital.

Let us consider one more case, that of company *C*, in which there are no bondholders. There is \$80,000 capital stock (common). But instead of owning the \$20,000 worth of fixed assets on which the managers of company *A* computed an annual depreciation charge of \$1,000, this concern enters into a renting contract, agreeing to pay a gross rental of \$2,000 per annum to the owners of this needed equipment. It is made a condition of the lease that the lessee is to make all ordinary repairs. Thus, reasons the accountant for company *C*, if there is a division of the \$2,000 gross rental which should be made by the lessor, a corresponding division should be made by the lessee; and under "indirect expenses of manufacture" he makes a charge of \$1,000 for depreciation, devising such an account title as seems to him accurately descriptive of the items contained therein, and then charges the net rent of \$1,000 either as a non-manufacturing cost (as in the table) or as a deduction from disposable income.² By this elimination of the net contractual rent item from the manufacturing section he has done that which should be the object of his accounting. He has truthfully presented the legitimate costs of manufacturing operations, which by hypothesis are the same as for companies *A* and *B*, since all technical and commercial conditions are the same. If in these three establishments technical and commercial (not financial) conditions should become altered, the alterations affecting the three companies in different directions and degrees, the cost accounts, kept as indicated, would make possible an accurate comparison of the commonly accepted costs. Contractual rent, like contractual interest, is not an item of manufacturing "overhead," and by the procedure above described has been so recorded. Yet it is possible to find eminent authority for the inclusion among the "indirect expenses" of

² The actual formal procedure might well be a little more elaborate, first the setting up of a charge of \$2,000 in an account called "rental of equipment," and then the crediting of this account \$1,000, the contra debit of which would be to the appropriate manufacturing cost account.

"Rent may include something more than interest, in which case a part thereof may properly be included in cost. . . ." A. L. Dickinson, "The Fallacy of Including Interest and Rent as Part of Manufacturing Cost," *Journal of Accountancy*, vol. 16, p. 95, note.

manufacture of both contractual interest and contractual rent.³

Furthermore, to introduce such contractual interest and rent charges into manufacturing records is to confuse grossly the debate regarding the propriety of charging as a cost normal non-contractual return on invested capital. If some of the capital in an enterprise has been borrowed and the contractual interest charges have been admitted to the manufacturing costs, the case for the use of normal non-contractual return figures is prejudiced. No one would have the hardihood deliberately to propose including in manufacturing costs both contractual and non-contractual "interest" items on the same capital. Likewise would it be with borrowed fixed assets (such assets sometimes being erroneously confused by economists and accountants with capital itself), and the contractual rent paid therefor. If this rent is distributed as manufacturing overhead, there can be no further claim for "opportunity cost" arising from the clothing of capital in these forms. In both of these cases, normal return on passive investment, if charged as an "opportunity cost" of manufacture, must logically be computed on the base of the net proprietorship, as shown in the balance sheet. Nay, rather, if contractual interest and contractual rent have already been charged as manufacturing costs, the strict logic of the situation would require the similar use of normal non-contractual return on the purely proprietary investment. The wisdom or unwisdom of treating these returns as costs of manufacture is no longer open to debate. The accounting procedure which leaves the question for debate in the clearest, simplest, and the least prejudiced form is, it seems to the writer, that which keeps the contractual interest and rent charges entirely separate from the manufacturing costs; then if the cost accountant, with a full knowledge of the "opportunity cost" nature of his entries, sees fit to introduce into the cost records figures to cover the normally expected income with which to reimburse the lenders of funds and the lenders of equipment, and to reward to a moderate degree the active risk takers, there will be one common method of procedure for all conditions of ownership. To refer to the illustrative table, companies *A*, *B*, and *C*, having been treated comparably as to manufacturing costs up to the point when the new procedure is decided upon, will still be kept on the same comparable bases. Their statements of operation will be uniformly modi-

³ Nicholson and Rohrbach, *Cost Accounting*, pp. 17, 22, 190-192.

fied by the charges of "opportunity cost" and the credits of anticipated income.

Let it be assumed then in the pages that follow that contractual interest and rent charges are to be handled as either non-manufacturing costs or as disposition of income items. The question for discussion then stands clearly forth: "Is it, or is it not, proper and expedient to charge against the product of an industry as a cost the amount of normally anticipated return on the capital used in its production?"

If there is one condition which more than any other has given rise to the proposal to introduce anticipated income or "opportunity cost" into the overhead items in manufacturing cost accounts it is the complexity of modern industry, especially with respect to the division of labor and the diversification of products within establishments. Active capitalists invest their funds in a given enterprise, clothing their capital in assets of different types. Out of the industrial processes emerge products for sale—products of many kinds—in the turning out of which the investors' capital has been distributed as between departments and processes in ever changing proportions. Some of the capital is clothed more or less permanently in so-called fixed assets—as land, buildings, and machinery. Other portions are clothed in less permanent asset forms—as raw materials, tools, and supplies. Still other portions are clad in the most transient of asset forms, cash, employed in a series of frequent operations such as the payment of wages, of daily incurred expenses of other types, in the purchase of current assets and the receipt of cash from sales. In the selling prices of all the products there is included, if the enterprise is successful, first, reimbursement for all the actual costs incurred in production—salaries and wages, materials and supplies consumed, insurance against losses from various industrial hazards, *et cetera*; and, second, rewards for the investors, both those who contract for small fixed incomes and those whose share is non-contractual or residual. From the standpoint of the last-named class of investors the larger the margin of gross profit the better; and, as a means to the securing of the maximum possible rewards for the performance of the risk-taking function, it becomes important to make each unit of each product sold yield a share of the whole profit in keeping with the proportion between the capital invested in assets employed in its production, and the total capital invested in the enterprise.

Where there is industrial monopoly the problem indicated in the last sentence is that of determining a price policy. Where monopoly does not exist and *ipso facto* there does not reside in the managers of an individual enterprise unrestricted power to manipulate prices, the problem is rather that of determining the direction of productive activity. But of this, more later. Let it be temporarily assumed, purely for the sake of argument, that price determination by the entrepreneur is possible and that it is desired to use the cost accounts of the enterprise to show for each product the price which will yield a given return on the capital actually employed.

For purposes of illustration let us assume for company *D* the conditions of operation presented in part in Table 2. This corpo-

TABLE 2

	Company <i>D</i>		
	Commodity <i>W</i>	Commodity <i>Y</i>	Commodity <i>Z</i>
1. Sales	\$75,000	\$50,000	\$25,000
2. Manufacturing costs			
3. Prime cost			
4. Direct material	\$20,000	\$12,000	\$5,000
5. Direct labor	15,000	8,000	3,000
6. Indirect charges			
7. Indirect material	8,000	10,000	3,000
8. Indirect labor	10,000	7,900	2,100
9. Indirect expenses			
10. Depreciation ¹	600	300	100
11. Other	1,400	1,800	1,800
12. Total manufacturing costs	55,000	40,000	15,000
13. Gross manufacturing profit	20,000	10,000	10,000
14. Non-manufacturing costs			
15. Selling costs	7,500	5,000	2,500
16. Fixed charges			
17. Rentals (net) ¹	600	300	100
18. Bond charges ²	500	360	140
19. Total non-manufacturing costs.....	8,600	5,660	2,740
20. Income for proprietary distribution			
a. By commodities			
b. Total	11,400	4,340	7,260
21. Dividends (at 8 per cent).....		4,800	
22. Surplus		5,000	
23. Other undivided profits.....		3,200	
			13,000

¹ Distributed between *W*, *Y*, and *Z* in the ratio of the distribution of the borrowed fixed assets, 60 per cent to *W*, 30 per cent to *Y*, and 10 per cent to *Z*.

² Distributed between *W*, *Y*, and *Z* in the approximate ratio of the distribution of the current assets, 50 per cent to *W*, 36 per cent to *Y*, and 14 per cent to *Z*.

ration was organized with a capital stock (common) of \$60,000 marketed at par. Additional capital was secured by a bond issue of \$20,000 bearing interest at the rate of 5 per cent per annum, the entire issue having been marketed at par so that the annual fixed charge on this account is \$1,000. Also, the incorporators secured the use of all the fixed assets employed in the manufacturing processes (land, buildings, and machinery) and valued at \$20,000, under the renting contract rather than by outright purchase, the terms of the lease being identical with those described in the case of company *C*. The accountant for company *D* analyzes the terms of the lease as in the case of company *C*, charging \$1,000 of the gross rental as a manufacturing cost comparable to the depreciation of the equipment, and treats the remaining \$1,000 as net rental in the nature of a fixed charge upon manufacturing profit.

Let company *D* produce and sell 1,000 units each of commodities *W*, *Y*, and *Z*, whose sales, "orthodox" manufacturing costs, and gross manufacturing profits are indicated in the upper portion of Table 2. Note in particular that, assuming the same rate of depreciation on all the fixed manufacturing assets, regardless of their assignment to one or another of the three products, 60 per cent of these assets are employed in manufacturing *W*, 30 per cent in manufacturing *Y*, and 10 per cent in manufacturing *Z*. The manufacturing costs per unit of *W*, *Y*, and *Z* are respectively \$55, \$40, and \$15. Let it be further assumed that the 5 per cent interest charge on the borrowed capital represented by the outstanding bonds, and the 5 per cent net rental estimated to reach the lesser of the fixed assets under the renting contract are representative of the normal return on the passive investment of capital. That is, let it be assumed, purely for the sake of argument, without debating the correctness of the rate per cent selected, that the stockholders in this enterprise are reasonably sure that their funds invested elsewhere passively would bring them a return of 5 per cent. They therefore wish to safeguard themselves in a price policy which will give them this minimum return upon their investment.

Further, let it be considered that the selling mechanism of this establishment is exceedingly simple, consisting of some arrangement of a commission nature which takes from the selling price of each unit of output 10 per cent thereof. So that for the purpose of this manufacturing cost illustration it will be assumed

that no appreciable amount of the capital invested in the enterprise is to be regarded by the accountant as specifically and permanently allocated to the performance of the selling function; and that the process of "marking up" manufacturing costs to cover selling expenses is uniform for all three commodities. Whatever is the investment in the enterprise on which it is hoped to earn a normal return is all to be regarded as capital devoted to manufacture.

Now if company *D* is to be reasonably successful, is it not clear that the accounting or other device employed as a means to the desired end must include in its computations all the capital invested in the enterprise, not simply a part thereof? It is required for the attainment of even moderate success, that the selling prices of the units of factory product shall in the aggregate equal the commonly accepted manufacturing costs, plus selling costs, plus 5 per cent net rental of the borrowed fixed assets, plus 5 per cent interest on the bonds outstanding, plus 5 per cent on the investment of the stockholders. If the capital investment of any one of the groups of investors be omitted from the calculations made in the determination of price or production policies, income will, so far as the policies adopted are effective, be deficient. If, to refer to company *D*, the \$60,000 capital investment of the stockholders be ignored in the determination of business policies, the income of the stockholders is likely to be nil. If the capital investment of the bondholders is ignored, the income distributed to these creditors will, *ceteris paribus*, be unaffected; but earnings available for dividends will be diminished by one third. Similar results would attend the exclusion from consideration of the equity of the lessor of the fixed assets. It would be difficult to conceive of an accountant who, in approaching a problem of business policy from the point of view of the equity side of the balance sheet and with income requirements in view as the major feature of his problem, would deliberately ignore any one equity representing the permanent investment of capital. The capital, the income upon which is now in debate as a legitimate manufacturing cost, is all the capital in the enterprise, not a part thereof.

And yet it is surprising to find, among those who are foremost in the advocacy of introducing "interest" cost charges in the books of account, a shifting of the point of view from the equity side of the balance sheet to the asset side, and, possibly as a result

of this shifting, a clearly defined and unmistakable refusal to admit that any capital other than that clothed in fixed assets is involved. The senior author of a recent and able text in cost accounting⁴ says, in explanation of his own position, that he has Never advocated the charging of interest on the capital invested as a whole, but only on the permanent or fixed assets used in manufacturing; that is, land, buildings, machinery, and equipment. He has never advocated interest on inventories of raw material and supplies, accounts receivable outstanding, or any other form of floating capital investment. Ignoring all economic arguments in connection with this subject, and confining it strictly to its relation to the fixing of a selling price, the writer is firmly of the opinion that it is necessary to consider interest in this connection in order to determine what would be a fair profit in a given case.⁵

It is hard to understand such a position unless a partial explanation be found in the first participial phrase of the last sentence of the quotation, "ignoring all economic arguments." The same writer in a paragraph preceding the paragraph just quoted, says:⁶

As it is just as necessary to pay for buildings, land, and machinery as it is to pay workmen for manufacturing a product, interest on the capital investment should be considered in ascertaining costs, especially where the value of the investment required for the manufacture of some articles is greater or less than that required for the manufacture of other articles.

Why not change the order of the words and say—"as it is just as necessary to pay workmen for manufacturing a product as it is to pay for buildings, land, and machinery . . . etc.? For while machine production and the extensive use of fixed assets are supposed to be typical of modern industrial activity, not all establishments are so organized. In the case of company *D* now before us, there is by hypothesis a relatively light investment of capital in these fixed asset forms, and 80 per cent of the investment is in "current," or "circulating," or "floating" form. Should not the price policy of the company aim to produce the desired 5 per cent return on this part of the investment also?

What, from a purely theoretical standpoint, is the difficulty involved in the proposal⁷ to compute "opportunity costs" on the

⁴ Nicholson and Rohrbach, *Cost Accounting*.

⁵ *Op. cit.*, pp. 139, 140.

⁶ *Ibid.*, p. 138.

⁷ Mr. Nicholson is by no means alone in his contention. Professor W. M. Cole, of Harvard University, in his paper before the American Economic

basis of fixed assets alone? Simply this, in the writer's view, that there is involved here an unnecessary and harmful confusion of the two sides of the balance sheet. Buildings, land, and machinery are assets. Capital is clothed in these forms. But not all capital is so clothed. Economists may be in dispute as to the definition of capital. That dispute is not a part of the subject of this article except insofar as the following principle obtains: that the word capital may not safely be used in a given discussion to refer to both sides of the balance sheet at the convenience of the writer or speaker. If capital means "proprietorship" or "net worth" or "equities," it cannot mean at the same time "land," "buildings," "machinery," or other fixed assets. If opportunity cost charges are to be introduced in the ledger as a means to the production of satisfactory returns to the holders of equities in a business, and it is desired to distribute such cost figures among several products, it may be necessary to formulate rules of procedure in terms of assets used in production. But these assets are all the assets, not merely a part of them.

Let us return to the consideration of company *D* with its investors' equities of \$100,000 on which it is required to earn a minimum return of \$5,000. Would it not be absurd to require that the minimum price allowed the selling department on commodity *W* be fixed at a figure which, when multiplied by 1,000 (the number of units anticipated to be manufactured and sold in the fiscal period) would produce \$55,000 (the "orthodox" manufacturing costs), plus \$7,500 (the assumed selling costs), plus \$3,000 (60 per cent of the hoped for net income), simply because 60 per cent of the fixed manufacturing assets are employed in manufacturing commodity *W*? The price per unit by such a computation would be \$65,500 divided by 1,000, or \$65.50. Similarly, to compute minimum prices on commodities *Y* and *Z* would give figures of \$46.50 and \$18. But the \$20,000 invested in fixed assets is but 20 per cent of the whole investment. It by no means follows that the remaining assets used in manufacturing have been distributed among these products in the same proportions as have the fixed assets. In fact, examination of Table 2 shows the contrary to have been the case.

Association in December, 1910, and in his article in the *Journal of Accountancy* in 1913 (see bibliographical note appended) has in mind the fixed-asset concept of capital, although it is not clear that he has consistently employed the word capital with this meaning.

Manufacturing outlays other than that involved in the depreciation of fixed assets have been for *W*, *Y*, and *Z* collectively \$54,400, \$39,700, and \$14,900. If (to simplify the illustration) we assume now steady production of all three commodities throughout the fiscal year, no differences between the production of *W*, *Y*, and *Z*, with respect to the regularity in point of time of expenditures of cash and disappearance of other current assets, then commodity *W* may be considered to have had used in its manufacture approximately 50 per cent of the current assets employed in the enterprise. Commodity *Y* may be considered to have had used in its production approximately 36 per cent of such assets, and commodity *Z* approximately 14 per cent. Table 3 exhibits the salient facts relating to the use of the different types of assets.

TABLE 3

	Total	<i>W</i>	<i>Y</i>	<i>Z</i>
Fixed assets...	\$20,000	\$12,000	60%	\$2,000
Current assets.	80,000	40,000	50	11,200
	100,000	52,000	52	13,200
			34.8	13.2

On the basis of a 5 per cent return on all the capital invested, in whatever asset forms it may be clothed, *W* should sell for \$65.10,⁸ *Y* for \$46.74, and *Z* for \$18.16.

By this method of calculation *Y* and *Z* should contribute \$0.24 and \$0.16 respectively per unit more to profits than under the fixed asset method of distributing the "interest" overhead. *W* could profitably be sold for \$0.40 less per unit and a reduction of price quotation might expand the market and permit of a greater volume of profitable trade. From the point of view of "opportunity cost," the fixed asset method of "interest" distribution, if made the basis for a price policy, results in the employment of \$48,000 of capital at a rate of return less than the assumed normal return on passive, non-risk-taking investment. Such an accounting procedure could hardly be considered truly profitable.

It appears then, that, when the economic principles involved in the problem are clearly understood and made the basis of any

⁸ That is, 1,000 units of *W* at \$65.10 = \$65,100, which equals \$55,000 (the gross manufacturing costs) plus \$7,500 (the selling costs) plus \$2,600 (5 per cent of the \$52,000 of all assets used for one fiscal year in producing *W*).

concrete plan for the introduction of "interest cost" charges into the books of account, the question of adopting such a plan becomes one of practical expediency. The important question then is, "Will this particular accounting procedure attain the desired goal at the minimum cost? Although a satisfactory answer can be secured only by reference to the circumstances of each specific case, one or two considerations bearing upon this practical problem may profitably be suggested.

In the case of company *D* the computation of actual results attained in the production and marketing of products, *W*, *Y*, and *Z* was a relatively simple matter, especially, as critics have already no doubt noted, numerous assumptions were made to attain this simplicity. Of course, with every deviation from these assumed conditions, the problem of ascertaining the real returns to capital from the handling of different classes of products becomes more complex and therefore more difficult. Irregularity of operation of the plant as between departments, irregularities in the occurrence of wage, repair, and other expense items must be taken account of in determining the actual investment of capital to be assigned to the several factory products. But is not such a determination *post facto* much more simple, and therefore much more likely to be accurate, than a calculation of current "opportunity cost" charges against departments and processes, when the charging of such items must be made not with reference to a complete record of actual events pertaining to the whole period involved, but on the basis of incomplete current operating figures and estimates? Professional accountants are not agreed among themselves as to the proper formulas for the distribution of commonly accepted overhead costs. Would not the construction of a valid formula for distributing "opportunity cost" overhead be even more difficult?

To return to company *D*: the data of Table 2 show that in the fiscal year under consideration the 1,000 units of *W* produced were sold for \$75,000, or \$75 per unit. This figure, minus the commonly accepted manufacturing costs (\$55,000) and the selling costs (\$7,500), gives a profit from all operations affecting *W* of \$12,500, available for distribution to all three classes of investors. If then there be subtracted the net rental on the 60 per cent of all the fixed assets of the concern which were used in producing *W* (\$600); and if, also, there be subtracted \$500, or 50 per cent of the bond interest charges (since the capital se-

cured by the bond issue has gone in with the other circulating capital and of the entire circulating capital 50 per cent was used in producing *W*), there remains \$11,400 from handling commodity *W* for purely proprietary distribution. This on an actual total capital investment in the production of *W* of \$52,000 for one year gives a return of 21.99+ per cent. Making similar calculations with respect to the actual conditions of production and sale of the two remaining commodities we find that the capital invested in *Y* has secured a return of 12.4+ per cent, and that invested in *Z*, 55 per cent. Here then is an important fact, ascertained by examination of the records of accomplishment. Only slightly more than 13 per cent of the total investment of capital has been applied in a field of production over twice as profitable as either of the other two fields of activity, and over one third of the capital (that invested in the production of *Y*) has yielded a return equal to less than one fourth of the return secured from commodity *Z*. Surely such facts, when known, can be used to advantage in determining a policy of production. It seems to the writer that Mr. A. L. Dickinson was right when he said,⁹ . . . "The correct way is not to charge into the cost an arbitrary rate of interest which means little or nothing, but to compare the margin between the sale and cost price; or in other words, the return upon each product, with the capital invested in order to secure that return."

In another place in the present paper¹⁰ it has been suggested that only under conditions of monopoly would the chief interest in detailed cost figures reside in their relation to the determination of prices to be quoted on goods already produced. But industrial monopoly is not as yet co-extensive with the field of industrial activity. If, now, it be assumed that competition is operative in the industry of which company *D* is a member, then company *D* is interested more in the question of what to produce, *W*, *Y*, or *Z*, or in what relative quantities to produce all three than in the determination of a theoretical price which it cannot force the market to accept. It is almost axiomatic that the prospective buyer or seller in a competitive market cannot control prices. If he does not wish to trade at existing price levels, he may withdraw, but he himself has no guarantee that he will benefit

⁹ Dickinson, A. L., "The Fallacy of Including Interest and Rent as Part of Manufacturing Cost," *Journal of Accountancy*, vol. 16, p. 96 (Aug., 1918).

¹⁰ *Supra*, p. 554-555.

by the price movement which follows his withdrawal. In the case of company *D*, then, it behooves the management to modify their productive activity, so far as the limitations of technical conditions permit, to bring more nearly to equality the returns on capital clothed in different assets or used in producing different commodities.

One more case at least should be considered; namely, that in which examination of the accounts shows that one of several factory products is yielding on the capital invested in its manufacture less than the commonly expected return on capital passively invested. If such a case were to occur, is it not clear that, subject to technical limitations, such as the possession of specialized equipment, there would be curtailment of output of that article, pending the restoration of more favorable market conditions? Insofar as the practice of introducing into the books of account during the fiscal period figures calculating the minimum price that will yield this "interest" return is concerned, such a procedure cannot at all affect the market. If, after the calculation is made and the goods are ready for sale, there is a slump in the market, the producer may take the existing price or leave it. His cost calculations cannot save him, except so far as they save him from selling before the market price gets back to a profitable basis. Conversely, it would be difficult in these post-war times to imagine a manufacturer voluntarily declining to follow the market upward on the ground that his "opportunity cost" had been calculated at a lower figure than possible profits.

In either case, that of the manufacturer who has estimated prices on the basis of reasonable "opportunity cost" and then finds the market price unfavorable by comparison, or that of the manufacturer in the opposite situation, it is not likely that an elaborate "interest" overhead computation, even though it be an accurate one, will be regarded as a very profitable exhibition of mental gymnastics on the part of the accounting department. But if the manufacturer thinks otherwise, let him make sure that this department is using, not abusing, economic principles.

To summarize, there are four major principles which should be recognized in the consideration of any plan for entering "interest cost" charges in manufacturing accounts. First, contractual payments of interest and of rent are not *per se* manufacturing costs. They may be regarded as non-manufacturing cost items or as charges against income, according to the point of view of the accountant in handling a particular situation.¹¹

Second, for the accountant to insert these items of contractual payment in the manufacturing section of a cost analysis, in contravention of the writer's first proposition, is to prejudice the debate regarding the propriety of calculating as a manufacturing cost the so-called "opportunity cost" of what capital passively invested usually earns. Even the Harvard Bureau of Business Research contends that contractual and non-contractual interest items must be charged in the same section of the statement of operations, if there is to be true comparability of costs as between different concerns.¹²

It is to be noted . . . that interest on capital owned and interest on capital borrowed are charged in the same way. This is necessary in any uniform accounting system which is to be used as a basis for collecting figures from numerous businesses. If one merchant is operating entirely on his own capital and another borrows half the capital employed in his business, the relative interest charges of the two businesses can obviously be compared only by determining the total interest charge for each business.

Third, if the accounting records of an enterprise are to be used to determine either a price policy or a policy of production, ignoring for the present the exact methods of such use, any computations of returns, either anticipated or realized, must take as their basis the total capital investment in the enterprise, not merely that part of the capital which, by accident or otherwise, is clothed in particular forms, as land, buildings, machinery, and other equipment.

Fourth, whether it is wise in any given instance to introduce "opportunity cost" charges into the manufacturing accounts is a question to be answered chiefly that on grounds of expediency and efficiency (assuming, of course, the three preceding principles are

¹¹ Cf., John Bauer, "Rents in Public Utility Accounting," *Journal of Accountancy*, vol. 20, pp. 21-27 (July 1915). "If its [i.e., the management's] purpose is to show the cost to the property as a whole, then neither rent nor interest should be included in factory costs; if the view is restricted to the corporate investment, then rent, but not interest, should be included; if the stockholders' investment only is considered, then both rent and interest upon borrowed capital would be included; and finally, if cost to the public is to be determined, then return upon the entire investment should be included. The question is not one of cost in general, but rather cost as to a particular investment viewpoint. Does not the purpose of the cost system finally control the proper accounting practice?"

¹² Graduate School of Business Administration, Harvard University, Bureau of Business Research, Bulletin No. 6, *Harvard System of Accounts for Shoe Wholesalers*, July, 1916, p. 28.

understood and observed). It is the writer's opinion, as has been indicated, that in most instances such introduction is likely to prove relatively inefficient and costly. But that is not to say that this accounting device is worthy of condemnation only.

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